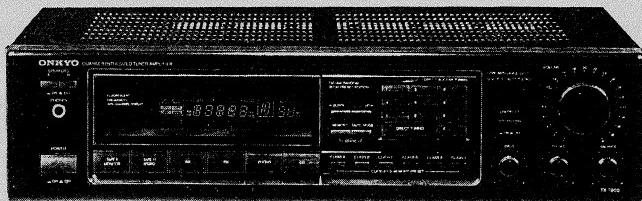
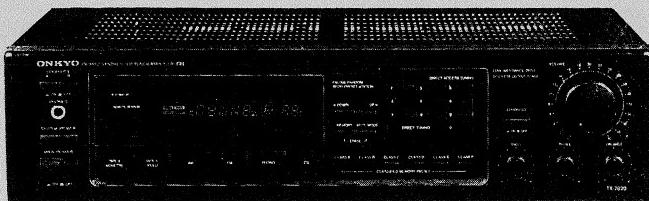


# ONKYO SERVICE MANUAL

## QUARTZ SYNTHESIZED TUNER AMPLIFIER MODEL TX-7800 MODEL TX-7820



Black and Silver models

### SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK  $\Delta$  ON THE SCHEMATIC DIAGRAM AND IN THE PARTS LIST ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE THESE COMPONENTS WITH ONKYO PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL.

MAKE LEAKAGE-CURRENT OR RESISTANCE MEASUREMENTS TO DETERMINE THAT EXPOSED PARTS ARE ACCEPTABLY INSULATED FROM THE SUPPLY CIRCUIT BEFORE RETURNING THE APPLIANCE TO THE CUSTOMER.

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# ONKYO AUDIO COMPONENTS

## SPECIFICATIONS

### AMPLIFIER SECTION

	TX-7820	TX-7800
Power Output:	50 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40Hz to 20kHz, with no more than 0.2% THD.	40 watts per channel, min. RMS, at 8 ohms, both channels driven, from 40kHz to 20kHz, with no more than 0.3% THD.
Musical Power Output:	2 X 120 watts at 4 ohms, 1kHz (DIN)	2 X 95 watts at 4 ohms, 1kHz (DIN)
Continuous Power Output:	2 X 80 watts at 8 ohms, 1kHz (DIN)	2 X 68 watts at 8 ohms, 1kHz (DIN)
Total Harmonic Distortion:	2 X 65 watts at 4 ohms, 1kHz (DIN)	2 X 55 watts at 4 ohms, 1kHz (DIN)
IM Distortion:	2 X 55 watts at 8 ohms, 1kHz (DIN)	2 X 45 watts at 8 ohms, 1kHz (DIN)
Damping Factor:	0.2% at rated power	0.3% at rated power
Frequency Response:	0.1% at 30e watt output	0.1% at 30 watt output
RIAA Deviation:	0.2% at rated power	0.3% at rated power
Sensitivity and Impedance:	0.1% at 30 watt output	0.1% at 30 watt output
Phono Overload:	50 at 8 ohms	50 at 8 ohms
Signal-to-Noise Ratio:	20 - 30.000 Hz ± 1dB	20 - 30.000 Hz ± 1dB
Tone Controls:	20 - 20.000 Hz ± 0.8dB	20 - 20.000 Hz ± 0.8dB
Muting:	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms 120mV RMS at 1kHz, 0.2% THD Phono: 80dB (at 5mV input, IHF-A) CD/Tape: 100dB (IHF-A)	Phono: 2.5mV/50 kohms CD/Tape Play: 150mV/50 kohms Tape Rec: 150mV/3.5 kohms 120mV RMS at 1kHz, 0.3% THD Phono: 80dB (at 5mV input, IHF-A) CD/Tape: 100dB (IHF-A)
	Bass: ± 10dB at 100Hz	Bass: ± 10dB at 100Hz
	Treble: ± 10dB at 10kHz	Treble: ± 10dB at 10kHz
	—	—

### TUNER SECTION

FM:	87.50-108.00MHz (50kHz steps)
Tuning Range:	Mono: 12.4dBf, 1.2 μV, 75ohms
Usable Sensitivity:	1.2 μV (S/N 26dB, 40kHz Dev.)
	75ohms DIN
	Stereo: 19.2dBf, 2.5 μV, 75ohms
	25 μV (S/N 46dB, Dev.)
	75ohms DIN
50dB Quieting Sensitivity:	Mono: 18.2dBf, 2.2 μV, 75ohms
	Stereo: 38.2dBf, 22 μV, 75ohms
Capture Ratio:	1.5dB
Image Rejection Ratio:	85dB
IF Rejection Ratio:	90dB
Signal-to-Noise Ratio:	Mono: 70dB
	Stereo: 65dB
Selectivity:	50dB DIN (±300kHz, 40kHz dev.)
AM suppression Ratio:	50dB
Harmonic Distortion:	Mono: 0.15%
	Stereo: 0.30%
Frequency Response:	30-15,000Hz±1.5dB
Stereo Separation:	40dB at 1kHz
	30dB at 100-10,000Hz
Muting Level:	17.2dBf, 4 μV
AM:	..
Tuning Range:	522-1610kHz (9kHz steps) 522-1610kHz (9kHz steps) or 530-1710kHz (10kHz steps) (World wide model)
Usable Sensitivity:	30 μV
Image Rejection Ratio:	40dB
IF Rejection Ratio:	40dB
Signal-to-Noise Ratio:	40dB
Harmonic Distortion:	0.8%

### GENERAL

	TX-7820	TX-7800
Dimensions (W×H×D):	455×120×316mm 17-15/16"×4-6/8"×12-7/16"	455×120×316mm 17-15/16"×4-6/8"×12-7/16"
Weight:	7.8kg, 17.2 lbs.	7.0kg, 15.4 lbs.

### Remote control transmitter RC-184S (Only Model TX-7820)

Transmitter:	Infrared
Signal range:	Approx. 5 meters (16ft. 4")
Power supply:	Two "AA" batteries(1.5V × 2)

Specifications and features are subject to change without notice.

## SERVICE PROCEDURES

### 1.Replacing the fuses

For continued protection against fire hazard, replace only with same type and same rating fuse.

Circuit no.	Part no.	Description
F902	252074	2A-SE-EAK, Primary
F951	252-74	2A-SE-EAK, AC outlet (Only model TX-7820)

### 2.Safety-check out

After correcting the original service problem, perform the following safety check before releasing the set to the customer.

Connect the insulating-resistance tester between the plug of power supply cord and nickel screw on the back panel.

Specifications: More than 10MΩ at 500V.

### 3.Changing the band step

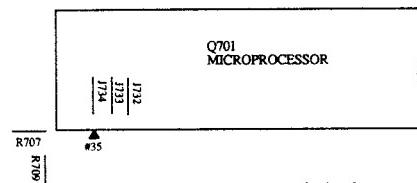
A BAND STEP selector switch is not provided.

#### (FM)

BAND STEP	R707(10kΩ)	J734
200kHz→50kHz	Add	Cut
50kHz→200kHz		Shorted

#### (AM)

BAND STEP	R709(10kΩ)	J732
10kHz→9kHz		Shorted
9kHz→10kHz	Add	Cut

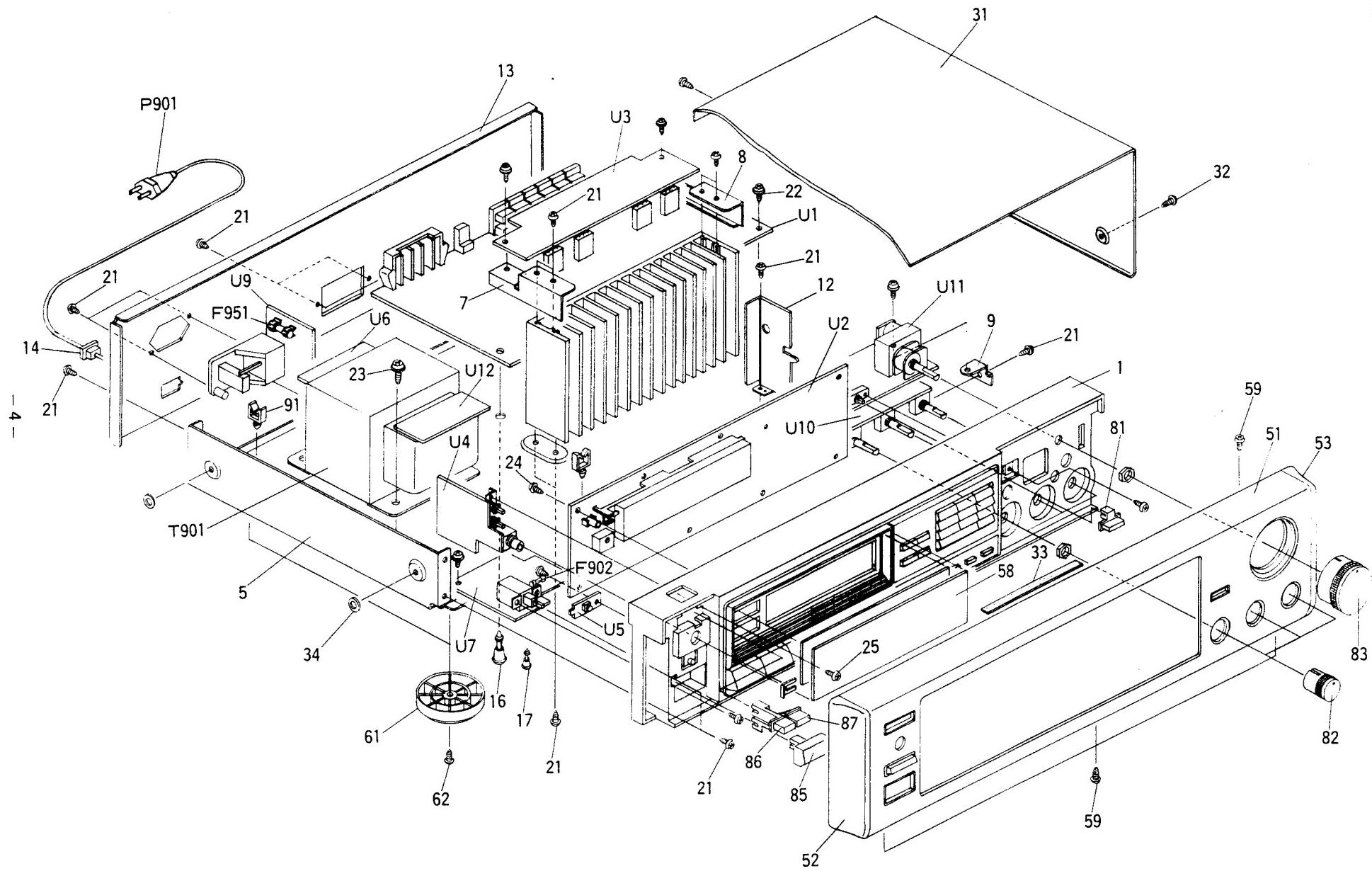


### 4.Memory preservation

This unit does not require memory preservation batteries. A built-in memory power back-up system preserves contents of the memory during power failures and even when the unit is unplugged. The unit must be plugged in and the power switch turned on and off once in order to charge the back-up system. Note that since this is not a permanent memory, the power switch must be turned on and off a few times each month to keep the back-up system operative. The period of time during which memory contents are preserved after power has last been turned off varies depending on climate and placement of the unit. On the average, memory contents are protected over a period of 3 to 4 weeks (a minimum of 2 weeks) after the last time power has been turned off. This period is shorter when the unit is exposed to very high humidity or used in an area with an extremely humid climate.

# **EXPLODED VIEW**

## **MODEL TX-7820**

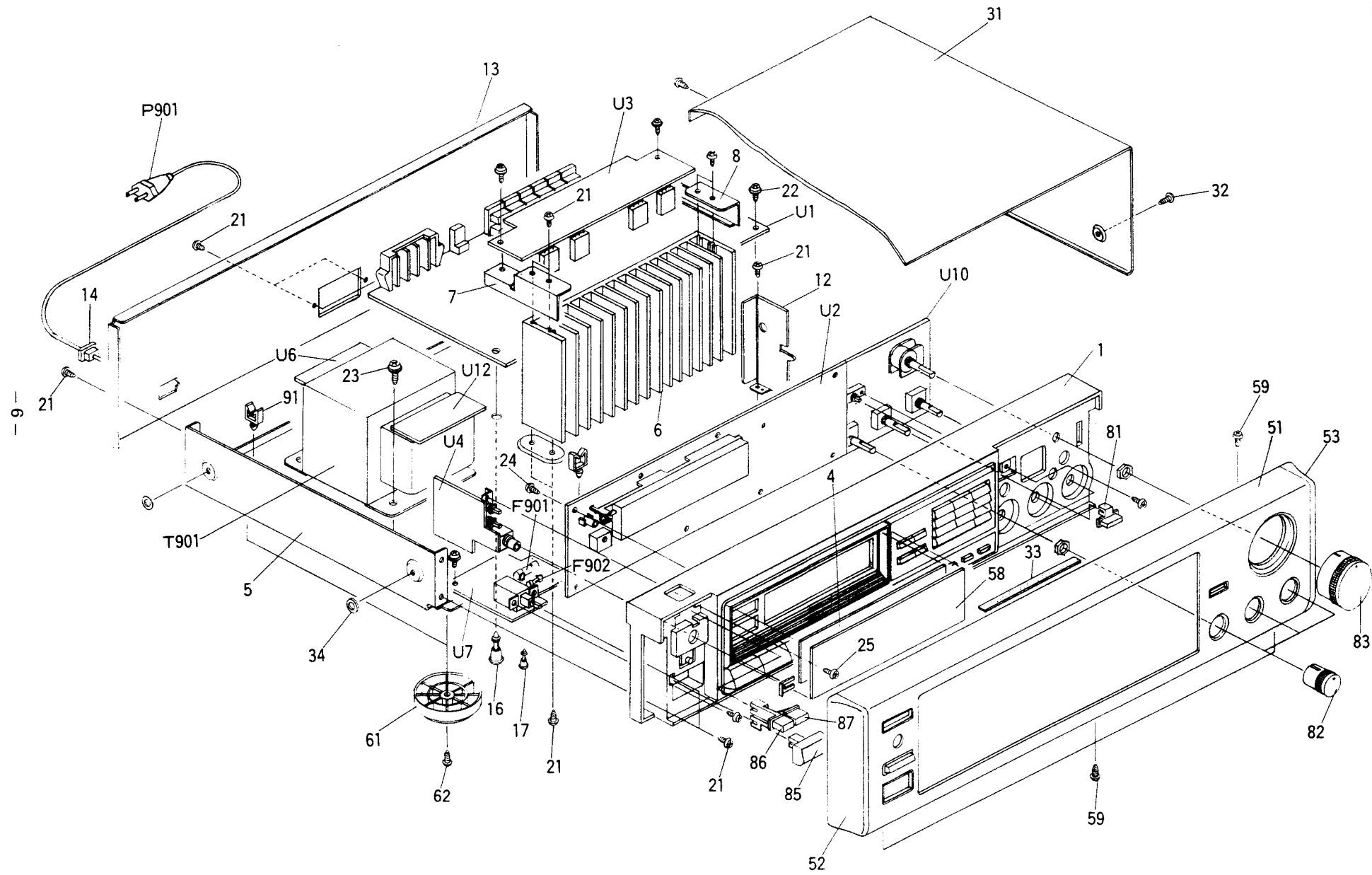


# PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	27110604AY	Front bracket <B>	87	28324171Y	Knob SP B <B>
	27110607AY	Front bracket <S>		28324173Y	Knob SP B <S>
4	28133254Y	Back plate	91	27300833	WS-2NS,Clamp
5	27100228Y	Chassis	F902	252074	△ 2A-SE-EAK,Fuse
6	27160272AY	Radiator	F951	252074	△ 2A-SE-EAK,Fuse
7	27141441Y	Bracket LH	P901	253164Y	△ AS-CEE,Power supply cord
8	27141442Y	Bracket RH	Q503,Q504	2202282, 2202283,	2SA1265N-R, 2SA1265N-O,
9	27141443Y	Bracket PC		2201693,	2SA1491-O,
12	27130643Y	Bracket,shield		2201694 or	2SA1491-Y or
13	27121406-2Y	Back panel		2201696	2SA1491-P,Power amplifier transistor
14	27300750	△ Bushing	Q505,Q506	2202292, 2202293,	2SC3182N-R, 2SC3182N-O,
16	27190524	KGLS-14R,Holder		2201703,	2SC3855-O,
17	27190266	KGLS-12R,Holder		2201704 or	2SC3855-Y or
21	834430088	3TTS+8B(BC),Self-tapping screw		2201706	2SC3855-P,Power amplifier transistor
22	831130088	3TTW+8B,Self-tapping screw	T901	2300616Y	△ NPT-1093P,Power transformer
23	830440089	4TTC+8C(BC),Self-tapping screw	U1	1A244536-1A	NARF-4036-1A,Tuner circuit pc board ass'y
24	833430080	3TTP+8P(BC),Self-tapping screw	U2	1A244537-1A	NADIS-4037-1A,Display circuit pc board ass'y
25	82143006	3P+6FN(BC),Pan head screw	U3	1A244538-1A	NAAF-4038-1A,Power amplifier circuit pc board ass'y
26	801433	3SMS10W.SW+14B(BC),Sems self-tapping screw	U4	1A244539-1A	NASW-4039-1A,Headphone terminal pc board ass'y
31	28184471AY	Top cover	U5	1A244540-1	NASW-4040-1,Power switch pc board ass'y
32	834430088	3TTS+8B(BC),Self-tapping screw	U6	1A244541-1	NAETC-4041-1,Terminal pc board ass'y
33	28140680	0.5×180×8,Cushion	U7	1A244542-1A	NAPS-4042-1A,Power supply circuit pc board ass'y
34	27270212	Spacer	U9	1A244544-1	NAETC-4044-1,AC outlet pc board ass'y
51	1A246121	Front panel ass'y <B>	U10	1A244545-1A	NAAF-4045-1A,Tone control circuit pc board ass'y
	1A247121	Front panel ass'y <S>	U11	1A244546-1	NAETC-4046-1,Volume control pc board ass'y
52	28125226AY	End cap L	U12	1A244596-1	NAETC-4096-1,Terminal pc board ass'y
53	28125227AY	End cap R			
58	28191577Y	Clear plate			
59	833430080	3TTP+8P(BC),Self-tapping screw			
60	28135199	Badge			
61	27175254Y	Leg			
62	834430088	3TTS+8B(BC),Self-tapping screw			
81	28324162Y	Knob LOUD <B>			
	28324177Y	Knob LOUD <S>			
82	28324150-1Y	Knob LEV <B>			
	28324151Y	Knob LEV <S>			
83	28324163	Knob VOL <B>			
	28324182	Knob VOL <S>			
85	28324140Y	Knob POW <B>			
	28324184	Knob POW <S>			
86	28324170Y	Knob SP A <B>			
	28324172Y	Knob SP A <S>			

NOTE: (B):Black Model  
(S):Silver model

NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

**EXPRODED VIEW**  
MODEL TX-7800

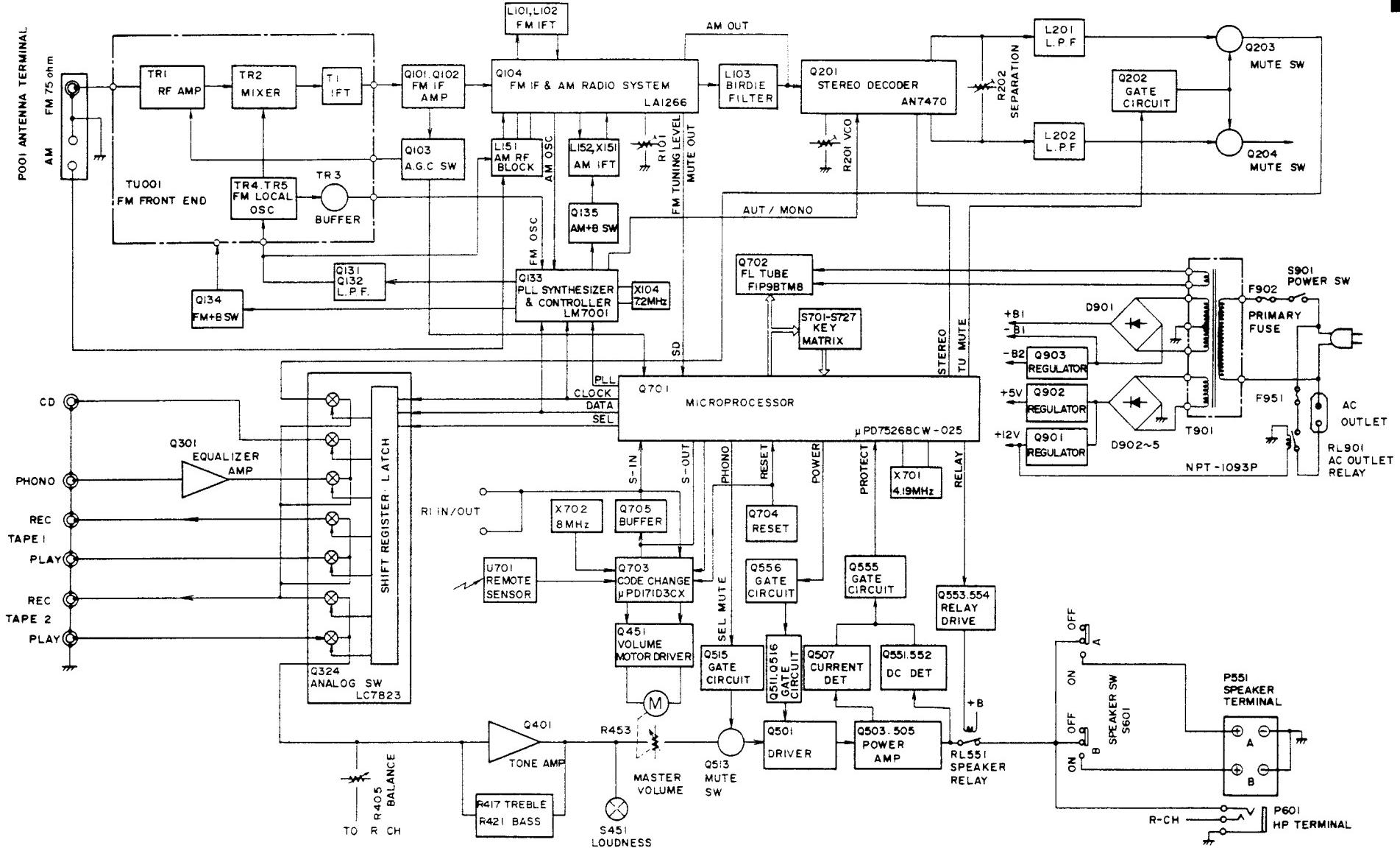
## PARTS LIST

REF. NO.	PART NO.	DESCRIPTION	REF. NO.	PART NO.	DESCRIPTION
1	27110604AY	Front bracket <B>	87	28324171Y	Knob SP B <B>
	27110607A	Front bracket <S>		28324173Y	Knob SP B <S>
4	28133255Y	Back plate	91	27300833	WS-2NS,Clamp
5	27100228Y	Chassis	F902	252074	△ 2A-SE-EAK,Fuse
6	27160274AY	Radiator	P901	253164Y	△ AS-CEE,Power supply cord
7	27141441Y	Bracket LH	Q503,Q504	2202492,	2SA1264N-R,
8	27141442Y	Bracket RH		2202493,	2SA1264N-O,
12	27130643Y	Bracket,shield		2202243,	2SA1694-O,
13	27121407-2Y	Back panel		2202244 or	2SA1694-Y or
14	27300750	△ Bushing		2202246	2SA1694-P,Power amplifier transistor
16	27190524	KGLS-14R,Holder	Q505,Q506	2202502,	2SC3181N-R,
17	27190266	KGLS-12R,Holder		2202503,	2SC3181N-O,
21	834430088	3TTS+8B(BC),Self-tapping screw		2202253,	2SC4467-O,
22	831130088	3TTW+8B,Self-tapping screw		2202254 or	2SC4467-Y or
23	830440089	4TTC+8C(BC),Self-tapping screw		2202256	2SC4467-P,Power amplifier transistor
24	833430080	3TTP+8P(BC),Self-tapping screw	T901	2300624Y	△ NPT-1095P,Power transformer
25	82143006	3P+6FN(BC),Pan head screw	U1	1A248536-2A	NARF-4036-2A,Tuner circuit pc board ass'y
26	801433	3SMS10W.SW+14B(BC),Sems self-tapping screw	U2	1A248537-2A	NADIS-4037-2A,Display circuit pc board ass'y
31	28184471AY	Top cover	U3	1A248538-2A	NAAF-4038-2A,Power amplifier circuit pc board ass'y
32	834430088	3TTS+8B(BC),Self-tapping screw	U4	1A248539-2A	NASW-4039-2A,Headphone terminal pc board ass'y
33	28140680	0.5×180×8,Cushion	U6	1A248541-2	NAETC-4041-2,Terminal pc board ass'y
34	27270212	Spacer	U7	1A248542-2A	NAPS-4042-2A,Power supply circuit pc board ass'y
51	1A250121	Front panel ass'y <B>	U10	1A248547-1A	NAAF-4047-1A,Tone control circuit pc board ass'y
	1A251121	Front panel ass'y <S>	U12	1A248596-2	NAETC-4096-2,Terminal pc board ass'y
52	28125226AY	End cap L	NOTE:<B>:Only Black model <S>:Only Silver model		
53	28125227AY	End cap R			
58	28191577Y	Clear plate			
59	833430080	3TTP+8P(BC),Self-tapping screw			
60	28135199	Badge			
61	27175254Y	Leg			
62	834430088	3TTS+8B(BC),Self-tapping screw			
81	28324162Y	Knob LOUD <B>			
	28324177Y	Knob LOUD <B>			
82	28324150-1	Knob LEV <B>			
	28324151	Knob LEV <S>			
83	28324181	Knob VOL <B>			
	28324182	Knob VOL <S>			
85	28324140Y	Knob POW <B>			
	28324184	Knob POW <S>			
86	28324170Y	Knob SP A <B>			
	28324172Y	Knob SP A <S>			

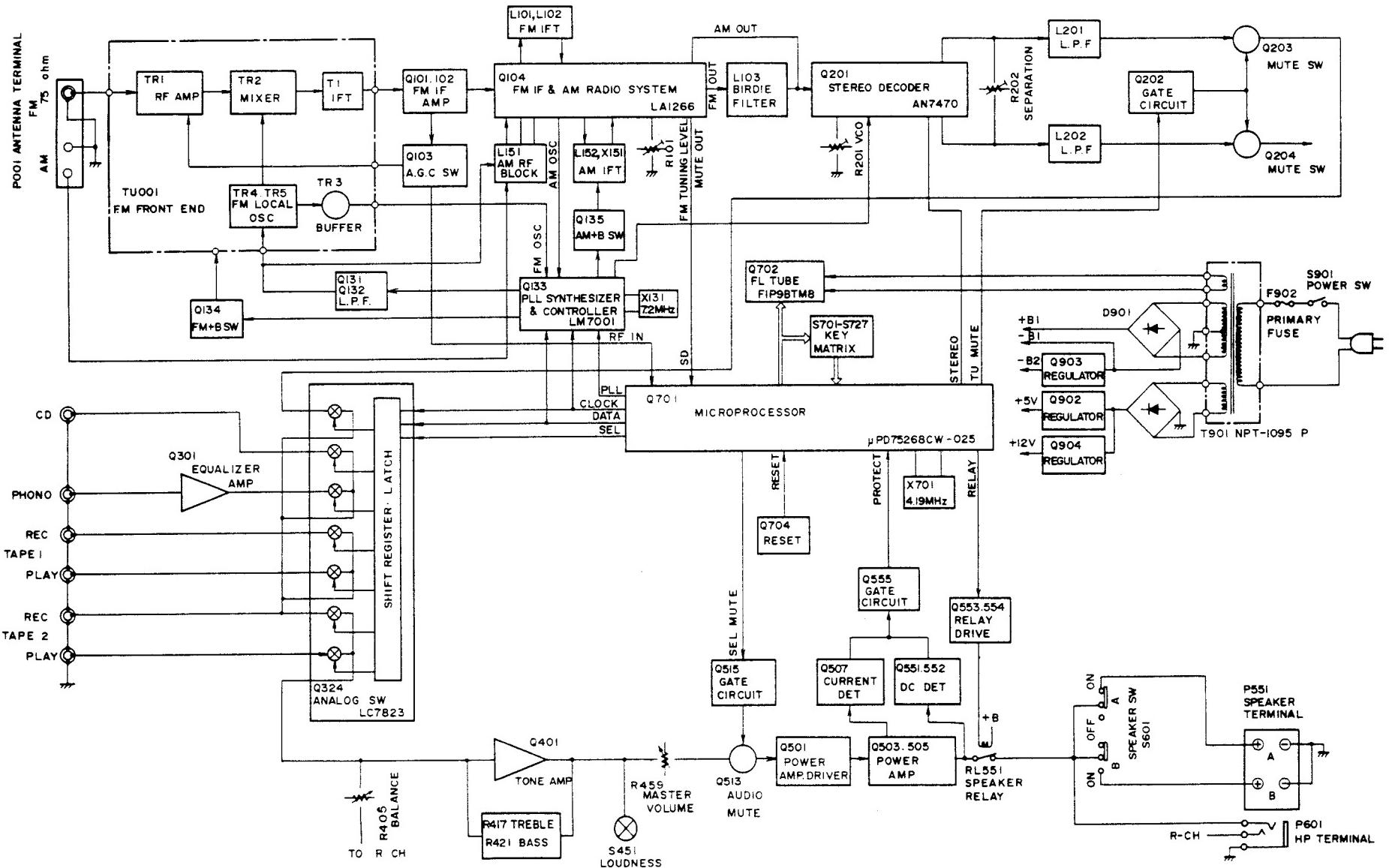
NOTE: THE COMPONENTS IDENTIFIED BY MARK △ ARE CRITICAL FOR RISK OF FIRE AND ELECTRIC SHOCK. REPLACE ONLY WITH PART NUMBER SPECIFIED.

# **BLOCK DIAGRAM**

## **MODEL TX-7820**

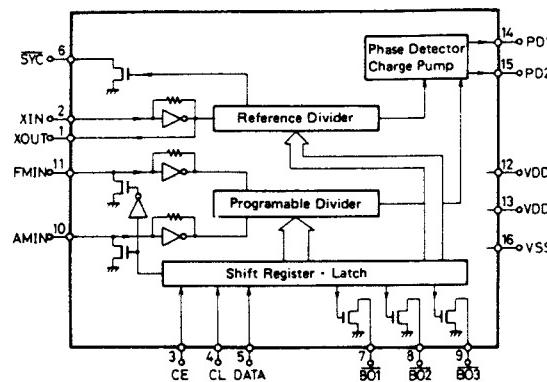


# MODEL TX-7800



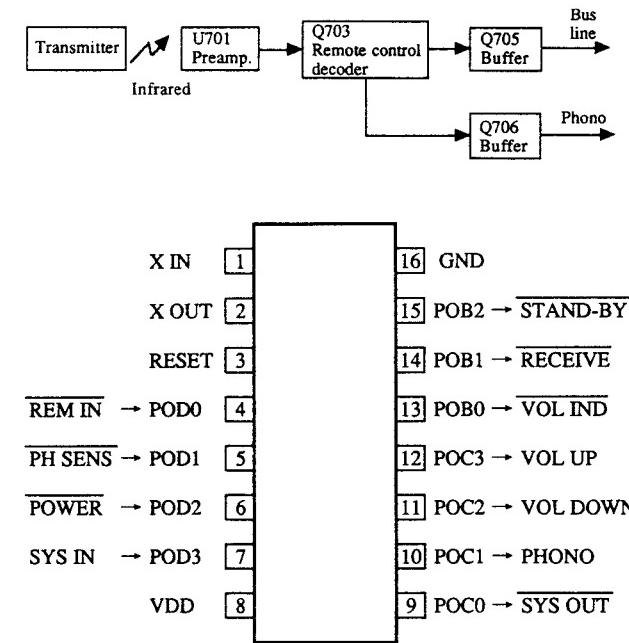
## IC BLOCK DIAGRAM AND DESCRIPTION

LM7001(PLL synthesizer and controller)



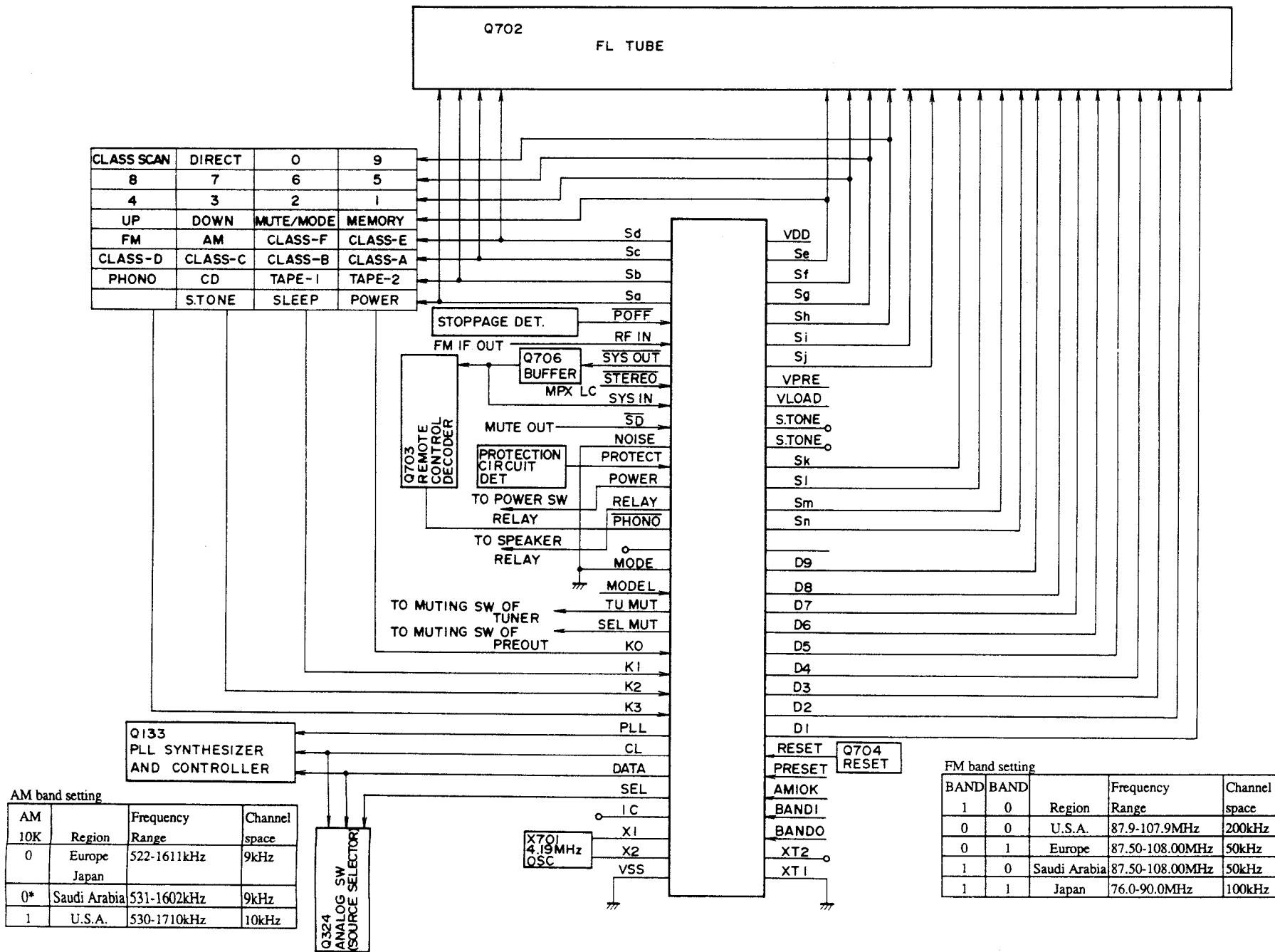
Pin No.	Terminal	Description
1	XOUT	Connect to the 7.2 MHz crystal oscillator.
2	XIN	
3	CE	Chip enable terminal. Connect to the PLL terminal of micro processor.
4	CL	Serial clock input terminal. Connect to the CLOCK terminal of micro processor.
5	DATA	Serial data input terminal. Connect to the DATA terminal of micro processor.
6	SYN	Not used.
7	AUTO/MONO	Auto/Mono control output terminal. "H" when Auto.
8	BO2	FM control signal output terminal. "L" when FM.
9	BO3	AM control signal output terminal. "L" when AM.
10	AMIN	AM local oscillator input terminal.
11	FMIN	FM local oscillator terminal.
12	VDD 1	Power supply terminal for back-up.
13	VDD 2	Power supply terminal.
14	PD1	Charge pump output of the phase detector which constitutes the PLL. High level is output when the divided local oscillator frequency is high than the reference frequency. In the opposite case, low level is output. Floating occurs when the frequencies matched. The output is applied to the variable capacitor diode in the local oscillator through the low pass filters.
15	PD2	
16	Vss	Ground terminal.

$\mu$ PD17103CX-528(Remote control decoder)  
MODEL TX-7820



X IN	1	GND
X OUT	2	POB2 → STAND-BY
RESET	3	POB1 → RECEIVE
REM IN → POD0	4	POB0 → VOL IND
PH SENS → POD1	5	POC3 → VOL UP
POWER → POD2	6	POC2 → VOL DOWN
SYS IN → POD3	7	POC1 → PHONO
VDD	8	POC0 → SYS OUT

Pin No.	Symbol	Terminal	Description
1	XIN	OSC	Connect to the 8.00MHz ceramic oscillator.
2	XOUT		
3	RES	RESET	System reset terminal. Active low.
4	POD0	REMOTE IN	Signal input terminal from preamp. for remote control. Active low.
5	POD1	PHONO SENSES	Phono detection input terminal. Active low.
6	POD2	POWER	Stand-by detection input terminal. During low input, only the POWER code is decoded.
7	POD3	SYS IN	System code input terminal.
8	V <sub>dd</sub>	+B	Power supply terminal.
9	POC0	SYS OUT	Output at this terminal are the custom code (16bits) remote control code input to REMOTE IN, data code (8bits), and the serial code (12bits) that has been converted corresponding to the decoded data code (8bits)
10	POC1	PHONO	When the player PLAY/REJECT is input, a high pulse of 200ms is output.
11	POC2	VOL DOWN	When the volume DOWN code is input, a high pulse of 120ms is output.
12	POC3	VOL UP	When the volume UP code is input, a high pulse of 120ms is output.
13	POB0	VOL IND	During the output of VOLUME UP/DOWN, a pulse (T T T T T = 250ms) is output. (Not used.)
14	POB1	RECEIVE	This is the display output for remote control reception. Output is low when decoded code is being received.
15	POB2	STAND-BY	STAND-BY indication terminal.
16	V <sub>ss</sub>	GND	Ground terminal.

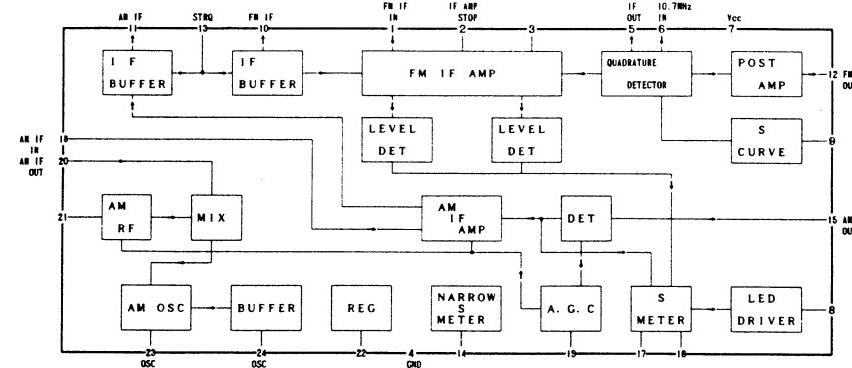
$\mu$ PD75268CW-025(Microprocessor)

## TERMINAL DESCRIPTION

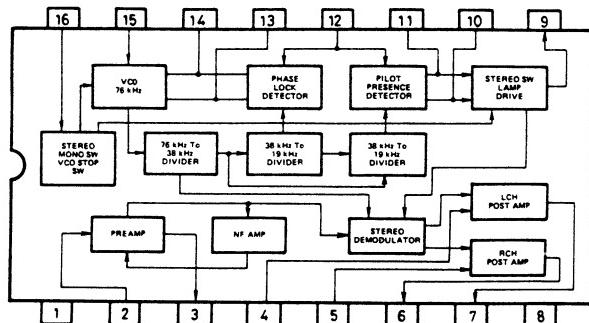
Pin No.	Symbol	Description						
1	Sd							
2	Sc	Segment and key scan output terminals. "H" when active.						
3	Sb							
4	Sa							
5	POFF	This is the input terminal for detection of the stoppage of electric current."L" when the stoppage of electric current.						
6	RF IN	RF mode input terminal. <table border="1" style="margin-left: auto; margin-right: auto;"><tr><td>RF IN</td><td>RF MODE</td></tr><tr><td>L</td><td>LOCAL</td></tr><tr><td>H</td><td>DX</td></tr></table>	RF IN	RF MODE	L	LOCAL	H	DX
RF IN	RF MODE							
L	LOCAL							
H	DX							
7	SYS OUT/ SYS EN	System code output terminal."L" when active. Initializing input terminal when the power turns on.						
8	STEREO	Stereo broadcast detection input terminal. "L" when stereo broadcast.						
9	SYS IN	System code input terminal."H" when active.						
10	SD	Broadcast detection input terminal."L" when active. Control the stop of auto tuning and output TU MUT(#19).						
11	NOISE	Noise detection input terminal.Not used.						
12	PROTECT	Protection circuit operation detection input terminal.						
13	POWER	Power control output terminal.						
14	RELAY	Speaker relay control output terminal.						
15	PHONO	Phono control output terminal.						
16		Not used.						
17	MODE	Initializing input terminal for operation mode setting.						
18	MODEL	Initializing input terminal for model setting of receiver.						
19	TU MUT	Muting output terminal."H" when active.						
20	SEL MUT	Audio muting output terminal.Not used.						
21	K0							
22	K1	Key scan input terminals. "H" when active.						
23	K2							
24	K3							
25	PLL	Connect to the terminal CE of PLL IC (LM7001 Q133).						
26	CL	Connect to the terminal CL of PLL IC and analogue switch.						
27	DATA	Connect to the terminals DATA of PLL IC and analogue switch.						
28	SEL	Analog switch control output terminal. Connect to the terminal SEL of analogue switch(LC7823 Q324)						

Pin No.	Function	Description
29	IC	Internal connected.
30	X1	Ceramic oscillator connection terminal for main system clock.
31	X2	Connect to the 4.19MHz ceramic oscillator.
32	VSS	Ground terminal.
33	XT1	Ceramic oscillator connection terminal for sub system clock.
34	XT2	Not used.
35	BAND0	Initializing input terminal for region setting of FM band.
36	BAND1	
37	AM 10K	Initializing input terminal for region setting of AM band.
38	PRESET	Initializing input terminal for operation mode setting.
39	RESET	Reset input terminal."L" when active.
40	D1	
41	D2	
42	D3	
43	D4	
44	D5	Digit output terminals."H" when active.
45	D6	
46	D7	
47	D8	
48	D9	
49		Not used.
50	Sn	
51	Sm	Segment output terminals."H" when active.
52	Sl	
53	Sk	
54	S.TONE	SELECTIVE TONE indication output terminal.Not used.
55	S.TONE	SELECTIVE TONE control output terminal.Not used.
56	VLOAD	Pull-down resistor connection terminal of FIP controller/driver.
57	VPRE	Power supply terminal of output buffer of FIP controller/driver.
58	Sj	
59	Si	
60	Sh	Segment and key scan output terminals.
61	Sg	"H" when active.
62	Sf	
63	Se	
64	VDD	Power supply terminal.(+5V)

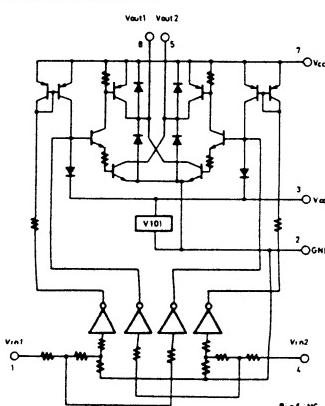
LA1266(FM IF and AM radio system)



AN7470(Stereo decoder)



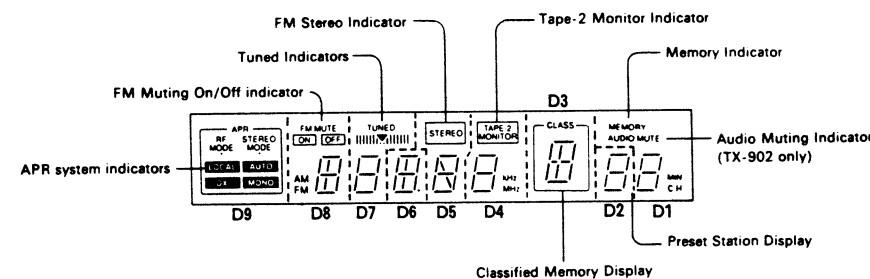
LB1630(Motor driver)



TRUTH TABLE

IN 1	IN 2	OUT 1	OUT 2	MOTOR
H	L	H	L	Normal
L	H	L	H	Reverse
H	H	OFF	OFF	Wait
L	L	OFF	OFF	Wait

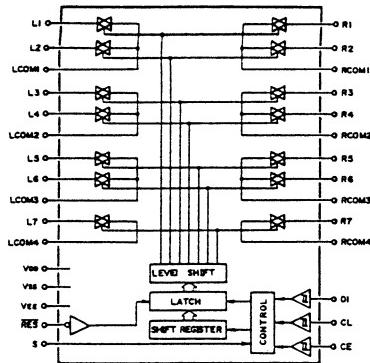
FIP9BTM8(Fluorescent tube)



Terminal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
Electrode	F	F	NP	9G	NP	NP	NP	NP	9G	NP	8G	NP	NP	8G	P(n)	
Terminal No.	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	
Electrode	7G	7G	P(m)	6G	6G	P(l)	P(k)	5G	P(j)	P(i)	4G	P(b)	NP	4G	P(g)	
Terminal No.	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	
Electrode	3G	P(f)	P(e)	3G	P(a)	2G	2G	P(b)	1G	P(c)	P(d)	1G	NP	F	F	

Note: F:Filament  
G:Grid  
P:Anode  
NP:No pin

	D9	D8	D7	D6	D5	D4	D3	D2	D1
Sa	APR	a	a	a	a	a	a	a	a
Sb	STEREO MODE	b	b	b	b	b	b	b	b
Sc	AUTO	c	c	c	c	c	c	c	c
Sd	MONO	d	d	d	d	d	d	d	d
Se	DX	e	e	e	e	e	e	e	e
Sf	LOCAL	f	f	f	f	f	f	f	f
Sg	RF MODE	g	g	g	g	g	g	g	g
Sh							h		
Si		i		i				i	
Sj	FM MUTE	TUNED			STEREO	TAPE-2	CLASS		MEMORY
Sk	ON	▼(TUNED)						k	SLEEP
Sl	OFF								AUDIO MUTE
Sm	AM						kHz		MIN
Sn	FM						MHz		CH

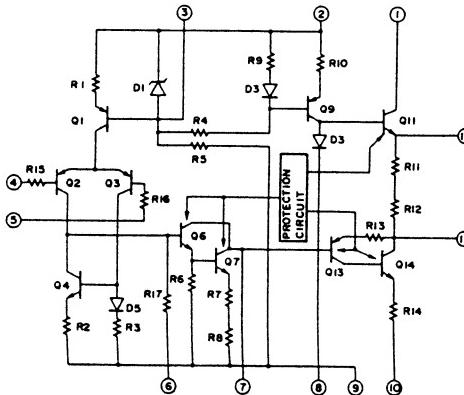
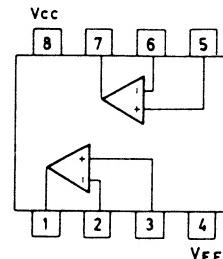
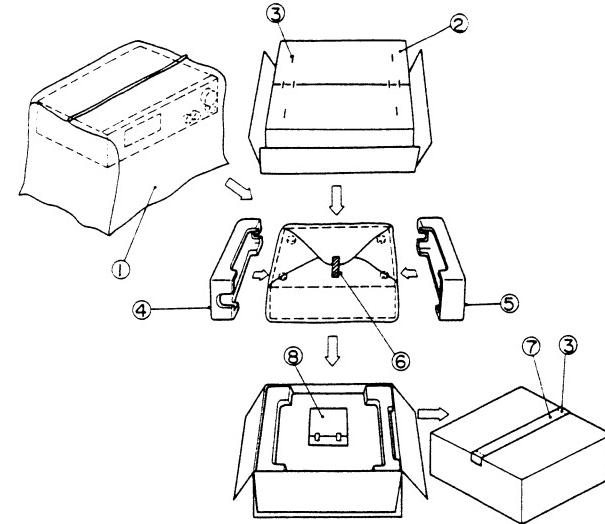
**LC7823/LC7823N(Analog switch)**

Serial Data Composition													
CIRCUIT NO	PART NAME	A0	A1	A2	A3	SW1	SW2	SW3	SW4	SW5	SW6	SW7	SW8
Q310	LC7823-N	0	1	1	1								
Q312	LC7821-N	1	1	0	1								
Q313	LC7823-N	1	1	1	1								
Q693	LC7822-N	0	0	1	1								
Q694	LC7822-N	1	0	1	1								

SWITCH CHANGE OVER

ADDRESS

Pin No.	Terminal	Description
1,30	CD	On when the input selector is CD.
2,29	PHONO	On when the input selector is PHONO.
3,28	LCOM1,RCOM1	Common terminal.
4,27	TAPE-1 REC	Off when the input selector is TAPE-1.
5,26	TAPE-1 PB	On when the input selector is TAPE-1.
6,25	LCOM2,RCOM2	Common terminal.
7,24	TAPE-2 REC	Off when the input selector is TAPE-2.
8,23	TAPE-2 PB	On when the input selector is TAPE-2.
9,22	LCOM3,RCOM3	Common terminal.
10,21	TUNER	On when the input selector is TUNER.
11,20	LCOM4,RCOM4	Common terminal.
12	VEE	Negative power supply terminal.(-15V)
13	CE	Chip enable terminal.Connect to the terminal FUNC of the microprocessor.
14	DI	Serial data input terminal.Connect to the terminal DATA of the microprocessor.
15	CL	Serial clock terminal.Connect to the terminal CL of the microprocessor.
16	Vss	Ground terminal.
17	S	Select terminal.
18	RES	Reset terminal.
19	VDD	Power supply terminal.(+5V)

 **$\mu$ PC1225H(Power amplifier driver)****NJM4558D-X(Operation amplifier)****PACKING VIEW****TX-7820**

REF. NO.	PART NO.	DESCRIPTION
1	29052137-1Y	Master carton box <B>
	29052137-2Y	Master carton box <S>
2	29091440AY	Pad L
3	29091441AY	Pad R
4	29100034A	850×650,Styrene bag
5	282301	Sealing hook
6	29110071	Dampion tape
7	261504	Adhesive tape
8	Accessory bag ass'y	
	29341584Y	Instruction manual
	29100097	350×250,Styrene bag
	292092	FM antenna
	232140	NMA-3057,AM loop antenna
	29365020B	Warranty card
	29100094A	Styrene bag for warranty card
	3010165Y	UM-3,Two batteries
	24140184Y	RC-184S,Remote control unit
	2010200	Cord RI

**TX-7800**

REF. NO.	PART NO.	DESCRIPTION
1	29052138-1Y	Master carton box <B>
	29052138-2Y	Master carton box <S>
2	29091440AY	Pad L
3	29091441AY	Pad R
4	29100034A	850×650,Styrene bag
5	282301	Sealing hook
6	29110071	Dampion tape
7	261504	Adhesive tape
8	Accessory bag ass'y	
	29341584Y	Instruction manual
	29100097	350×250,Styrene bag
	292092	FM antenna
	232140	NMA-3057,AM loop antenna
	29365020B	Warranty card
	29100094A	Styrene bag for warranty card

NOTE:<B>:Only Black model  
<S>:Only Silver model

## ADJUSTMENT PROCEDURES

### Preparation

#### 1. Input

FM mono: 1kHz, 75kHz devi., 60dB/ $\mu$  V

FM stereo: 1kHz, 75kHz devi., 60dB/ $\mu$  V

Pilot signal 19kHz 7.5kHz devi.

AM: 400Hz 30% mod.

#### 2. Outputs

Connect the non-inductive type resistors of 8 ohms to the speaker terminals A unless otherwise noted.

#### 3. Standard Knob Position

VOLUME.....Maximum

BASS/TREBLE/BALANCE.....Center

MUTING/LOUDNESS.....Off

INPUT SELECTOR.....CD

SPEAKERS.....A

### Confirming Operation

#### 1. Protection circuit

##### a. Speaker relay

The speaker relay turns on after the power switch turned on for 5 minutes.

The speaker relay turns off immediately after the power switch turns off.

##### b. Over-voltage confirmation

The speaker relay is off immediately after DC voltage  $\pm 6V$  is applied to the terminal CD.

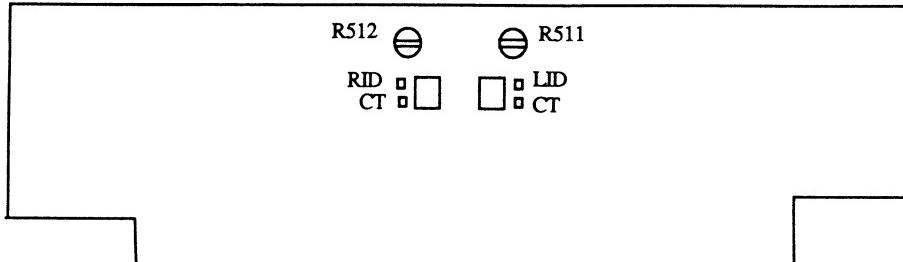
### Amplifier section

#### Idling Current Adjustment

Connect the DC voltmeter to the terminals LID(RID) and CT on the power amplifier pc board.

Adjust the semi-fixed resistor R511(R512) so that the indication of voltmeter is  $5 \pm 0.5mV$ .

Note: ( ):Right channel



POWER AMPLIFIER PC BOARD

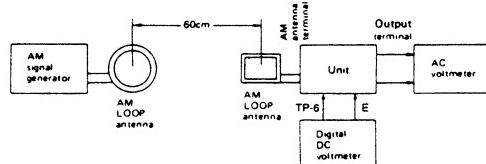
SOLDERING SIDE

**FM section**

Item	Step	Connection of instrument	FM SG output	Stereo modulator output	Tuned frequency	Output indicator	Adjustment point	Adjust for	Remarks
I F	1	Fig. 1	99.1MHz 1kHz,75kHz devi. 65dBf(60dB)	—	99.1MHz	DC voltmeter	L101	0±20mV	Set the FM mode switch to MONO. Repeat the steps 1 and 2 until no further adjustment is necessary.
	2					Distortion analyzer	L102	Minimum	
V C O		Fig. 2	99.1MHz 1kHz,75kHz devi. 65dBf(60dB)	—	99.1MHz	Frequency counter	R201	19kHz±10Hz	Set the FM mode switch to AUTO.
Stereo distortion		Fig. 3	99.1MHz Ext. modulation 65dBf(60dB)	L+R 1kHz 67.5kHz devi.	99.1MHz	Distortion analyzer	IF on front end	Minimum	
Stereo separation	1	Fig. 3	99.1MHz Ext. modulation 65dBf(60dB)	Lch. 1kHz	99.1MHz	Rch. AC voltmeter	R202	Minimum	Maximum and same separation
	2			Rch. 1kHz		Lch. AC voltmeter		Minimum	
Tuned indicator level	1	Fig. 3	99.1MHz 1kHz, 75kHz devi. 17.2dBf(12dB)	—	99.1MHz	TUNED indicator	R101	Light on	
	2		99.1MHz 1kHz, 75kHz devi. 16.2dBf(11dB)	—				Light off	

**AM section**

Step	AM SG output	Tuned Frequency	Output indicator	Adjustment point	Adjust for
1	—	522kHz	Digital DC voltmeter	OSC coil on RF block (L151)	1.5V±0.1V
2	603kHz,60dB/m 400Hz 30% mod.	603kHz	A C voltmeter	RF coil on RF block (L151)	Maximum
3	990kHz, 60dB/m 400Hz 30% mod.	990kHz	A C voltmeter	L152	Maximum

**Reference specifications**

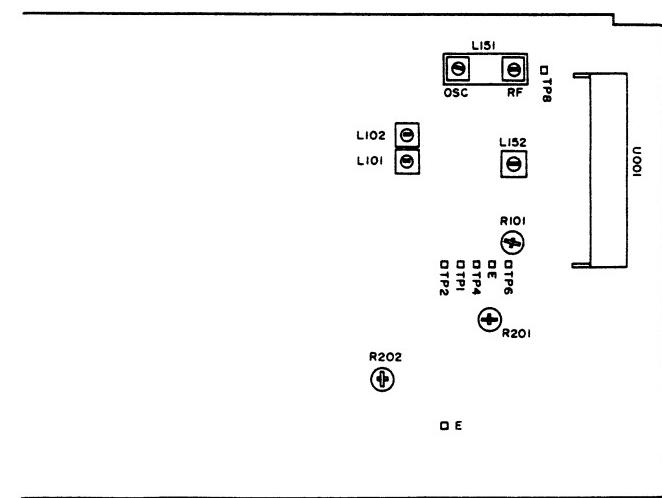
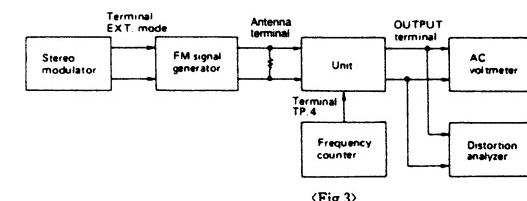
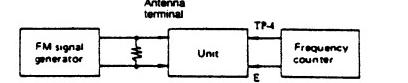
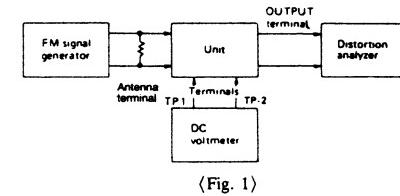
Tuned voltage AM 522kHz 1.5 ±0.4V  
(Connet Digital 1611kHz 7.5 ±0.5V  
DC voltmeter to FM 87.50MHz 2.0 ±0.5V  
test point TP-6) 108.0MHz 7.5 ±0.5V

Muting width 35 ± 10kHz

Muting level FM 12 ± 3dB

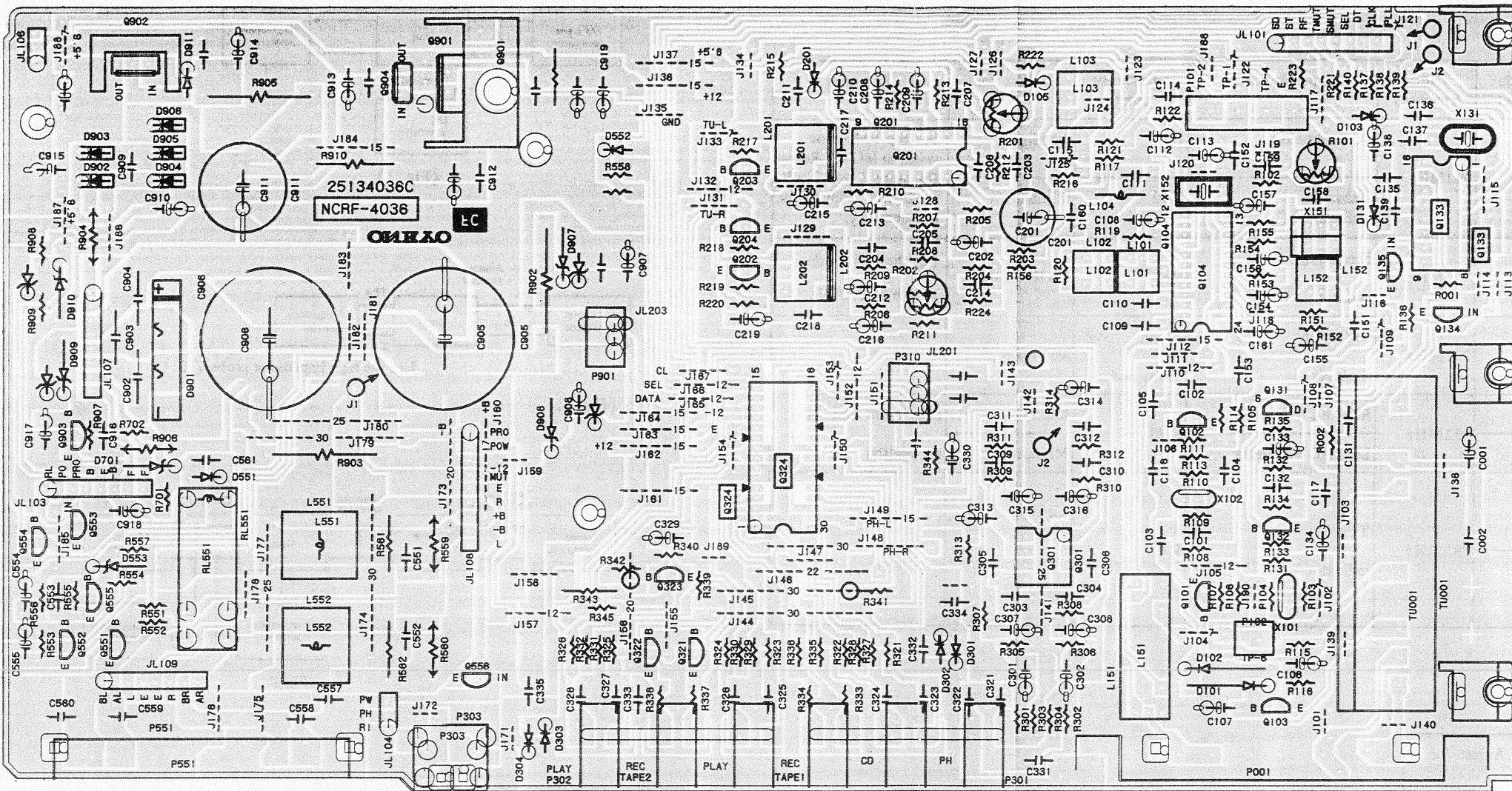
Auto stop level AM Less than 68dB/m

FM Less than 20dB $\mu$   
Stereo indicator level 14 ± 4dB $\mu$

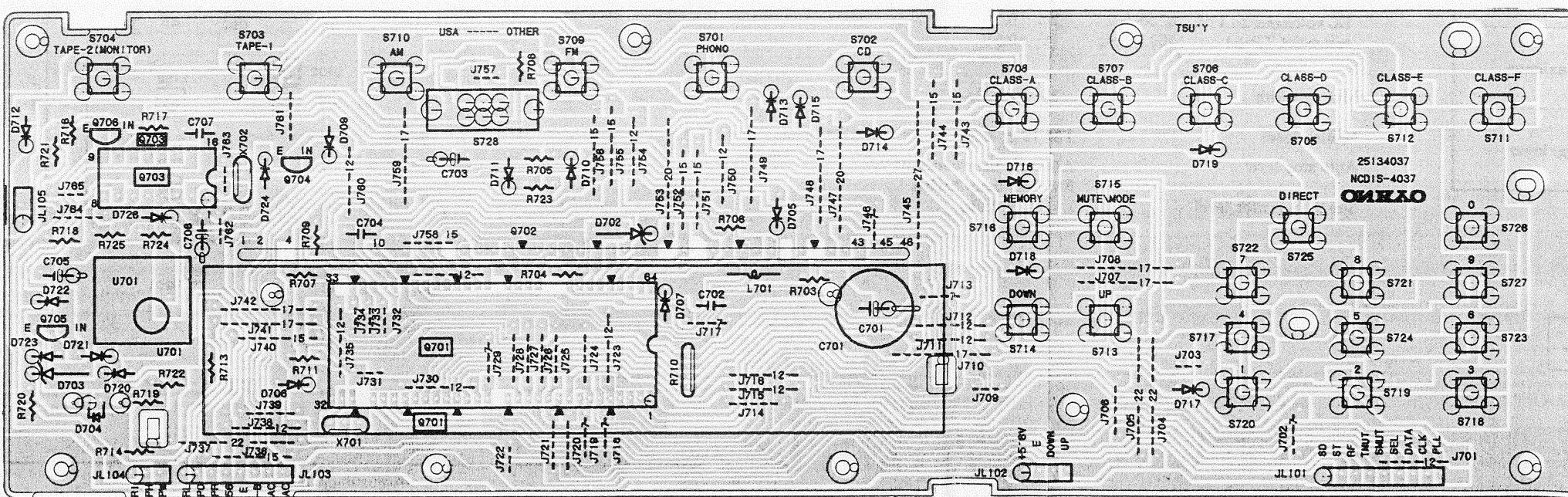


Adjustment point.

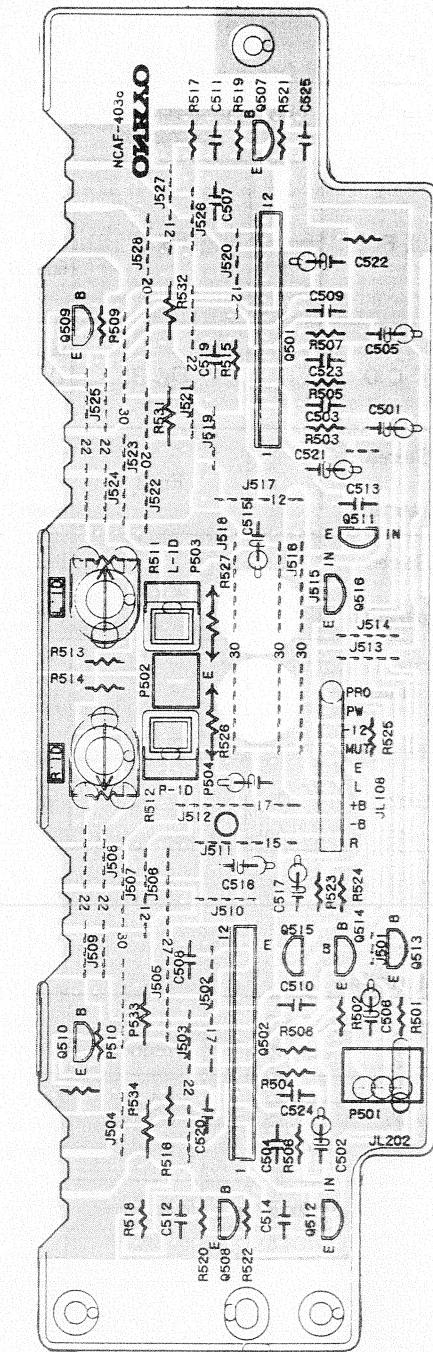
PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



#### TUNER CIRCUIT PC BOARDS

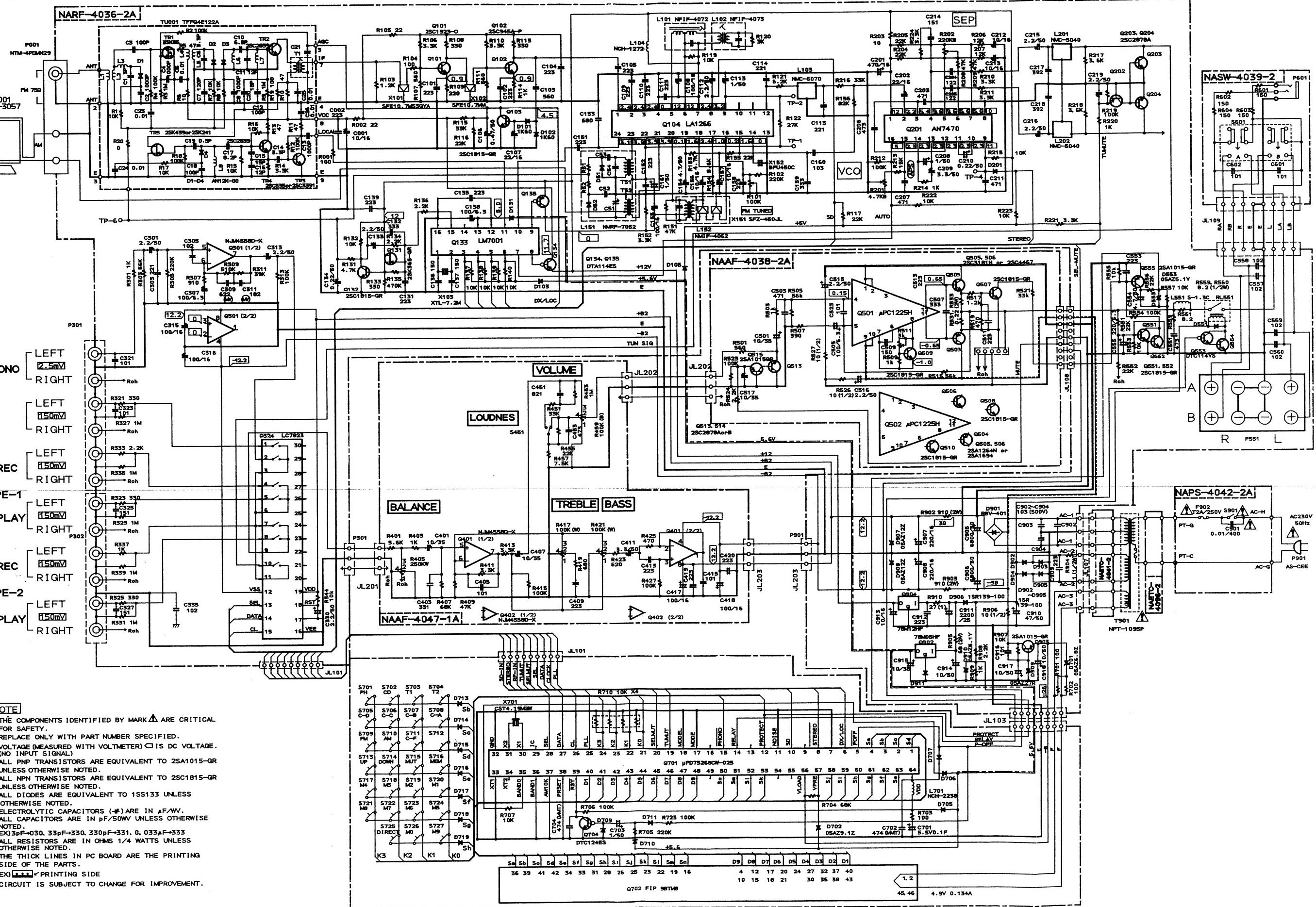


## DISPLAY CIRCUIT PC BOARD



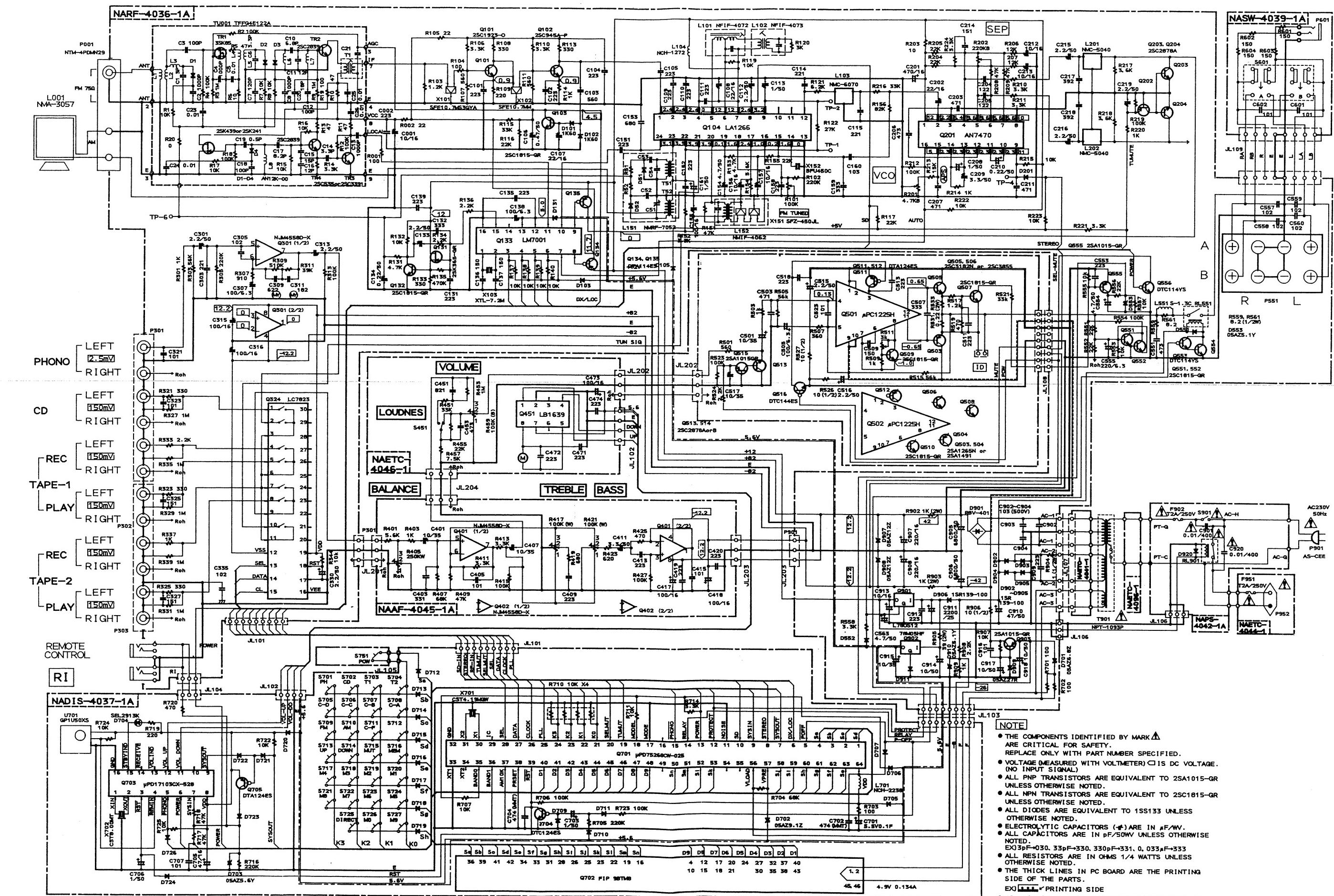
## POWER AMPLIFIER CIRCUIT PC BOARD

**SCHEMATIC DIAGRAM**  
MODEL TX-7800

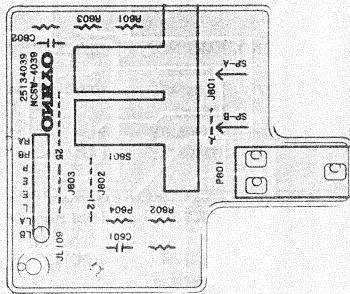


**A**      **B**      **C**      **D**      **E**      **F**      **G**

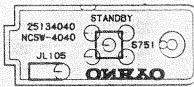
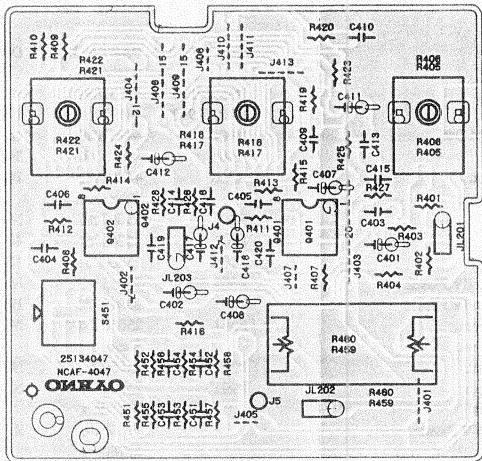
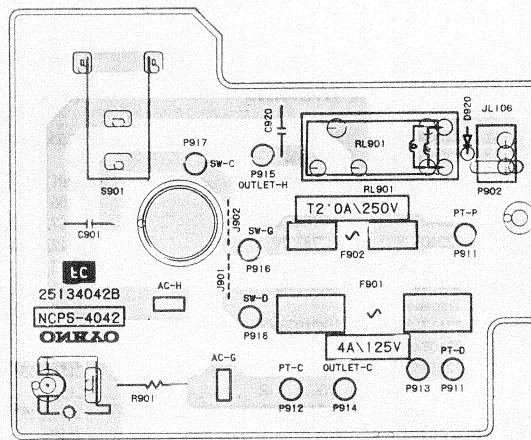
**SCHEMATIC DIAGRAM**  
MODEL TX-7820



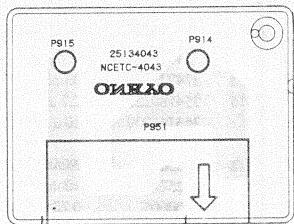
## PRINTED CIRCUIT BOARD VIEW FROM BOTTOM SIDE



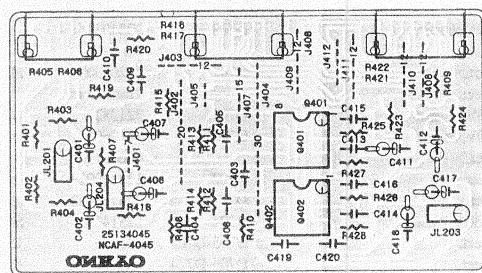
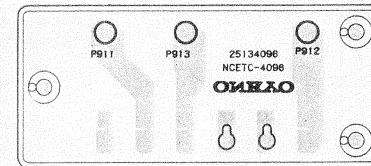
HEADPHONE TERMINAL PC BOARD

POWER SWITCH PC BOARD  
(Only Model TX-7820)TONE CONTROL CIRCUIT PC BOARD  
(Only Model TX-7800)

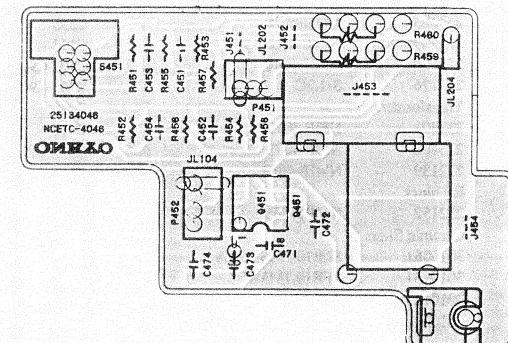
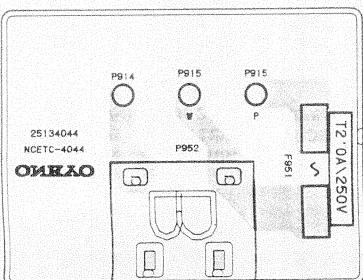
POWER SUPPLY CIRCUIT PC BOARD



AC OUTLET PC BOARD

TONE CONTROL CIRCUIT PC BOARD  
(Only Model TX-7820)

TERMINAL PC BOARD

VOLUME CONTROL PC BOARD  
(Only Model TX-7820)

AC OUTLET PC BOARD

# PRINTED CIRCUIT BOARD-PARTS LIST

MODEL TX-7820

## TUNER CIRCUIT PC BOARD (NARF-4036-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION
TU001	240085	Front end ICs	X131	3010158	Crystal Relay
Q104	22240039	LA1266	RL551	25065339	NRL-2P5ADC24-046
Q133	22240090	LM7001			Capacitors
Q201	22240242	AN7470	C001	354761009	10 $\mu$ F,35V,Elect.
Q301	222502	NJM4558D-X	C106	354784799	0.47 $\mu$ F50V,Elect.
Q324	22240158 or 22240339	LC7823 or LC7823N	C107,C108	354742209	22 $\mu$ F,16V,Elect.
Q901	222780126Y	L780S12	C112,C133	354780229	2.2 $\mu$ F,50V,Elect.
Q902	222780055	78M05HF	C113	354780109	1 $\mu$ F,50V,Elect.
	Transistors		C131	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
Q101	2211723	2SC1923-O	C132,C159	374723334	0.033 $\mu$ F $\pm$ 5%,50V,Plastic
Q102	2210746	2SC945A-P	C134,C210	353782299	0.22 $\mu$ F,50V,Elect.
Q103,Q132	2211255	2SC1815-GR	C138	354721019	100 $\mu$ F,6.3V,Elect.
Q131	2212445	2SK365-GR	C154,C554	354780479	4.7 $\mu$ F,50V,Elect.
Q134,Q135	2213510	DTA114ES	C155	354741019	100 $\mu$ F,16V,Elect.
Q202,Q555	2211455	2SA1015-GR	C156,C157	354761009	10 $\mu$ F,35V,Elect.
Q203,Q204	2212285	2SC2878-A	C160	374721034	0.01 $\mu$ F $\pm$ 5%,50V,Plastic
Q551,Q552	2211255	2SC1815-GR	C161,C208	354780109	1 $\mu$ F,50V,Elect.
Q553,Q556	221281	DTC114YS	C201	354744719	470 $\mu$ F,16V,Elect.
Q554	2211255	2SC1815-GR	C202	354742209	22 $\mu$ F,16V,Elect.
Q903	2211455	2SA1015-GR	C204,C205	374721224	1200pF $\pm$ 5%,50V,Plastic
	Diodes		C206	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic
D101,D102	223132	1K60	C207	370134714	470pF $\pm$ 5%,100V,Plastic
D103,D105	223163	ISS133	C209	354780339	3.3 $\mu$ F,50V,Elect.
D131,D201	223163	ISS133	C212,C213	354761009	10 $\mu$ F,35V,Elect.
D551,D552	223163	ISS133	C215,C216	354780229	2.2 $\mu$ F,50V,Elect.
D553	224150512	05AZ5.1Y	C217,C218	374723924	3900pF $\pm$ 5%,50V,Plastic
D701	224150683	05AZ6.8Z	C219	354780229	2.2 $\mu$ F,50V,Elect.
D901	22380023	RBV401	C301,C302	354780229	2.2 $\mu$ F,50V,Elect.
D902-D906	22380032	1SR139-100	C307,C308	354721019	100 $\mu$ F,6.3V,Elect.
D907,D908	224151203	05AZ12Z	C309,C310	374726224	6200pF $\pm$ 5%,50V,Plastic
D909	224152704	05AZ27R	C311,C312	374721824	1800pF $\pm$ 5%,50V,Plastic
D910	224150512	05AZ5.1Y	C313,C314	354780229	2.2 $\mu$ F,50V,Elect.
D911	223163	ISS133	C315,C316	354741019	100 $\mu$ F,16V,Elect.
	Coils		C330	354780229	2.2 $\mu$ F,50V,Elect.
L103	233383	NMC-6070	C555	354722219	220 $\mu$ F,6.3V,Elect.
L104	233409M022	NCH-1272	C563	354780479	0.47 $\mu$ F $\pm$ 5%,50V,Plastic
L201,L202	233294	NMC-5040	C905,C906	3504207	6800 $\mu$ F,50V,Elect.
L551,L552	231176	S-1.3C	C907,C908	354742219	220 $\mu$ F,16V,Elect.
	Transformers		C910	354784709	47 $\mu$ F,50V,Elect.
L101	233401	NFIF-4072	C911	354752229	2200 $\mu$ F,25V,Elect.
L102	233402	NFIF-4073	C913-C915	354761009	10 $\mu$ F,35V,Elect.
L152	232139	NMF-4062	C917,C918	354781009	10 $\mu$ F,50V,Elect.
	RF block				Resistors
L151	232152	NMRF-7052	R101	5210221 or 5210070	N06HR100KBD Semi-fixed
	Ceramic filters		R201	5210216 or 5210062	N06HR5KBD or N06HR4.7KBD ,Semi-fixed
X101	3010081	SFE10.7MS3GYA	R202	5210222 or 5210072	N06HR200KBD or N06HR220KBD,Semi-fixed
X102	3010137	SFE10.7MMK			
X151	3010123	SFZ450L			
X152	3010076	BFU450C			

CIRCUIT NO.	PART NO.	DESCRIPTION	CIRCUIT NO.	PART NO.	DESCRIPTION				
		Resistors	R559,R560	442520824	8.2ohm,1/2W,Metal oxide film				
			R902,R903	441721024	1kohm,2W,Metal oxide film				
			R904	442520104	1ohm,1/2W,Metal oxide film				
			R905	441723904	39ohm,2W,Metal oxide film				
			R906	442521004	10ohm,1/2W,Metal oxide film				
		Terminals	P001	25060087	NTM-2PDPMN31,Antenna				
			P101	25060064	4P-5				
			P102	25060061	1P-5				
			P301,P302	25045323Y	NPJ-6PDBL180				
			P303	25045172	HSJ-003-01-020				
			P551	25060158Y	NTM-8PDML084,Speaker				
		Sockets	P301,P310	25050267	NSCT-3P95				
			P901	25050267	NSCT-3P95				
					Radiators				
					P27160145	RAD-51			
					P27160166	RAD-51			
					P27160176	RAD-56			
						DISPLAY CIRCUIT PC BOARD (NADIS-4037-1A)			
						CIRCUIT NO. PART NO. DESCRIPTION			
						Q507-Q510	2211255	2SC1815-GR	
						Q511,Q512	2212600	DTA124ES	
						Q513,Q514	2212285	2SC2878-A	
						Q515	2211455	2SA1015-GR	
						Q516	221282	DTC144ES	
						C501,C502	354761009	10 $\mu$ F,35V,Elect.	
						C505,C506	354741019	100 $\mu$ F,16V,Elect.	
						C507,C508	374723334	0.033 $\mu$ F $\pm$ 5%,50V,Plastic	
						C515,C516	354780229	2.2 $\mu$ F,50V,Elect.	
						C517	353761009	10 $\mu$ F,35V,Elect.	
						Diodes			
						D702	224150913	05AZ9.1Z	
						D703	224150562	05AZ5.6Y	
						D704	225142	SEL2913K,L.E.D.	
						D705-D707	223163	1SS133	
						D709-D724	223163	1SS133	
						X701	3010163	Ceramic oscillators	
						X702	3010154	CST4.19MW	
						L701	233400M220 or 233409K220	Coil	
							S601	25035517	NCH-2238 or
							P601	25045255	NCH-1284
									Capacitors
						C701	3000057	0.1F,5.5V,Super	
						C702,C704	375524744	0.47 $\mu$ F $\pm$ 5%,50V,Plastic	
						C703	353780229	2.2 $\mu$ F,50V,Elect.	
						C705	353744709	47 $\mu$ F,16V,Elect.	
						C706	353780109	1 $\mu$ F,50V,Elect.	
						R710	49163103404	Resistor	
									Resistor
									Plugs
							P503,P504	25055495	NPLG-2P470
									HEADPHONE TERMINAL PC BOARD(NASW-4039-1A)
									CIRCUIT NO. PART NO. DESCRIPTION
							S601	25035517	NPS-222-L479,Speaker switch
							P601	25045255	YKB21-5009,Headphone terminal
									POWER SWITCH PC BOARD (NASW-4040-1)
									CIRCUIT NO. PART NO. DESCRIPTION
							S751	25035548	NPS-111-S510,Push switch

## POWER SUPPLY CIRCUIT PC BOARD(NAPS-4042-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
D920	223163	ISS133,Diode
S901	25035550	△ NPS-111-L512P,Push switch
RL901	25065248	△ NRL-1P15A-DC12-29,Relay
C901,C920	3500065A	△ DE7150FZ103PAC400V/125V IS capacitors
P901	25050267	NSCT-3P95,Socket
F902	252074	△ 2A-SE-EAK,Fuse
F902a	25050065	△ YSH-403T,Fuseholder

NOTE: THE COMPONENTS IDENTIFIED BY MARK △  
ARE CRITICAL FOR RISK OF FIRE AND  
ELECTRIC SHOCK. REPLACE ONLY WITH  
PART NUMBER SPECIFIED.

CAUTION: Replacement for transistor of mark \* if necessary,  
must be made from the same beta group ( $H_{FE}$ ) as  
the original type.

## AC OUTLET PC BOARD(NAETC-4044-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
P951	252074	2A-SE-EAK,Fuse
F951a	25050065	YSH403T,Fuseholders
P952	25050410	NSCT-2P235,AC outlet

## TONE CONTROL CIRCUIT PC BOARD (NAAF-4045-1A)

CIRCUIT NO.	PART NO.	DESCRIPTION
	ICs	
Q401,Q402	222502	NJM4558D-X
	Capacitors	
C401,C402	354761009	10 $\mu$ F,35V,Elect.
C407,C408	354761009	10 $\mu$ F,35V,Elect.
C409,C410	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C411,C412	354780339	3.3 $\mu$ F,50V,Elect.
C413,C414	374722234	0.022 $\mu$ F $\pm$ 5%,50V,Plastic
C417,C418	354741019	100 $\mu$ F,16V,Elect.
	Resistors	
R405,R406	5104225	N11RGLC250KWT2ZZ,Balance
R417,R421	5104230	N14RLC100KWT2ZZ,Tone
R418,R422		

## VOLUME CONTROL PC BOARD(NAETC-4046-1)

CIRCUIT NO.	PART NO.	DESCRIPTION
Q451	22240322	LB1639,IC
C453,C454	374724734	0.047 $\mu$ F $\pm$ 5%,50V,Plastic capacitors
C473	354741019	100 $\mu$ F,16V,Elect. capacitor
R459,R460	5104243	N16RGM100KBTP25F,Volume Variable resistor
P451	25050267	NSCT-3P95,Socket
P452	25050268	NSCT-4P96,Socket
S451	25035609	NPS-122-L571,Switch

# PRINTED CIRCUIT BOARD-PARTS LIST

## MODEL TX-7800

### TUNER CIRCUIT PC BOARD (NARF-4036-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

Front end  
ICs

Q104 22240039 LA1266

Q133 22240090 LM7001

Q201 22240242 AN7470

Q301 222502 NJM4558D-X

Q324 22240158 or LC7823 or

22240339 LC7823N

Q902 222780055 78M05HF

Q904 222780125Y 78M12HF

Transistors

Q101 2211723 2SC1923-O

Q102 2210746 2SC945A-P

Q103,Q132 2211255 2SC1815-GR

Q131 2212445 2SK365-GR

Q134,Q135 2213510 DTA114ES

Q202,Q555 2211455 2SA1015-GR

Q203,Q204 2212285 2SC2878-A

Q551,Q552 2211255 2SC1815-GR

Q553 221281 DTC114YS

Q554 2211255 2SC1815-GR

Q903 2211455 2SA1015-GR

Diodes

D101,D102 223132 1K60

D103,D105 223163 ISS133

D131,D201 223163 ISS133

D551 223163 ISS133

D553 224150512 05AZS.1Y

D701 224150683 05AZ6.8Z

D901 22380023 RBV401

D902-D906 22380032 1SR139-100

D907,D908 224151203 05AZ12Z

D909 224152704 05AZ27R

D910 224150512 05AZS.1Y

D911 223163 ISS133

Coils

L103 233383 NMC-6070

L104 233409M022 NCH-1272

L201,L202 233294 NMC-5040

L551,L552 231176 S-1.3C

Transformers

L101 233401 NFIF-4072

L102 233402 NFIF-4073

L152 232139 NMIF-4062

RF block

L151 232152 NMRF-7052

Ceramic filters

X101 3010081 SFE10.7MS3GYA

X102 3010137 SFE10.7MMK

X151 3010123 SFZ450JL

X152 3010076 BFU450C

Crystal

X131 3010158 XTL-7.2M

### CIRCUIT NO. PART NO. DESCRIPTION

RL551 Relay

Capacitors

C001 354761009 10  $\mu$ F,35V,Elect.

C106 354784799 0.47  $\mu$ F,50V,Elect.

C107 354742209 22  $\mu$ F,16V,Elect.

C108 354741019 100  $\mu$ F,16V,Elect.

C112,C133 354780229 2.2  $\mu$ F,50V,Elect.

C113 354780109 1  $\mu$ F,50V,Elect.

C131 354722234 0.022  $\mu$ F $\pm$ 5%,50V,Plastic

C132,C159 354723334 0.033  $\mu$ F $\pm$ 5%,50V,Plastic

C134,C210 353782299 0.22  $\mu$ F,50V,Elect.

C138 354721019 100  $\mu$ F,6.3V,Elect.

C154,C554 354780479 4.7  $\mu$ F,50V,Elect.

C155 354741019 100  $\mu$ F,16V,Elect.

C156,C157 354761009 10  $\mu$ F,35V,Elect.

C160 354721034 0.01  $\mu$ F $\pm$ 5%,50V,Plastic

C161,C208 354780109 1  $\mu$ F,50V,Elect.

C201 354744719 470  $\mu$ F,16V,Elect.

C202 354742209 22  $\mu$ F,16V,Elect.

C204,C205 354721224 1200  $\mu$ F $\pm$ 5%,50V,Plastic

C206 354724734 0.047  $\mu$ F $\pm$ 5%,50V,Plastic

C207 370134714 470pF $\pm$ 5%,100V,Plastic

C209 354780339 3.3  $\mu$ F,50V,Elect.

C212,C213 354761009 10  $\mu$ F,35V,Elect.

C215,C216 354780229 2.2  $\mu$ F,50V,Elect.

C217,C218 354723924 3900  $\mu$ F $\pm$ 5%,50V,Plastic

C219 354780229 2.2  $\mu$ F,50V,Elect.

C301,C302 354780229 2.2  $\mu$ F,50V,Elect.

C307,C308 354721019 100  $\mu$ F,6.3V,Elect.

C309,C310 354726224 6200  $\mu$ pF $\pm$ 5%,50V,Plastic

C311,C312 354721824 1800  $\mu$ pF $\pm$ 5%,50V,Plastic

C313,C314 354780229 2.2  $\mu$ F,50V,Elect.

C315,C316 354741019 100  $\mu$ F,16V,Elect.

C330 354780229 2.2  $\mu$ F,50V,Elect.

C551,C552 354724734 0.047  $\mu$ F $\pm$ 5%,50V,Plastic

C555 354722219 220  $\mu$ F,6.3V,Elect.

C905,C906 3504207 6800  $\mu$ F,50V,Elect.

C907,C908 354742219 220  $\mu$ F,16V,Elect.

C910 354784709 47  $\mu$ F,50V,Elect.

C911 354752229 2200  $\mu$ F,25V,Elect.

C913-C915 354761009 10  $\mu$ F,35V,Elect.

C917,C918 354781009 10  $\mu$ F,50V,Elect.

Resistors

R101 5210221 or N06HR100KBD

5210070 Semi-fixed

5210216 or N06HR5KBD or

5210062 N06HR4.7KBD ,Semi-fixed

5210222 or N06HR200KBD or

5210072 N06HR220KBD,Semi-fixed

R559,R560 442520824 8.2ohm,1/2W,Metal oxide film

R902,R903 441729114 910ohm,2W,Metal oxide film

R904 442520104 1ohm,1/2W,Metal oxide film

R905 441726804 68ohm,2W,Metal oxide film

### CIRCUIT NO. PART NO. DESCRIPTION

Resistors

R906 442521004 10ohm,1/2W,Metal oxide film

R910 441622704 27ohm,1W,Metal oxide film

Terminals

P001 25060087 NTM-2PDPMN31,Antenna

P101 25060064 4P-5

P102 25060061 1P-5

P301,P302 25045323Y NPJ-6PDBL180

P551 25060158Y NTM-8PDML084,Speaker

P310,P901 25050267 NSCT-3P95

### DISPLAY CIRCUIT PC BOARD (NADIS-4037-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

ICs

Q501,Q502 22240108  $\mu$ PC1225H

Transistors

Q503,Q504 2202492, \* 2SA1264N-R,

2202493, \* 2SA1264N-O,

2202243, \* 2SA1694-O,

2202244 or \* 2SA1694-Y or

2202246, \* 2SA1694-P

Q505,Q506 2202502, \* 2SC3181N-R,

2202503, \* 2SC3181N-O,

2202253, \* 2SC4467-O,

2202254 or \* 2SC4467-Y or

2202256, \* 2SC4467-P

DISPLAY CIRCUIT PC BOARD (NADIS-4037-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

ICs

Q507-Q510 2211255 2SC1815-GR

Q513,Q514 2212285 2SC2878-A

Q515 2211455 2SA1015-GR

Capacitors

C501,C502 354761009 10  $\mu$ F,35V,Elect.

C505,C506 354741019 100  $\mu$ F,16V,Elect.

C507,C508 37472334 0.033  $\mu$ F $\pm$ 5%,50V,Plastic

C515,C516 354780229 2.2  $\mu$ F,50V,Elect.

C517 353761009 10  $\mu$ F,35V,Elect.

Resistors

R511,R512 5215061 N08HR3KBC,Semi-fixed

R526,R527 442521004 10ohm,1/2W,Metal oxide film

R531,R534 4500005 0.22ohm,2W,Metal plate

Plugs

P503,P504 25055495 NPLG-2P470

P501 25050267 NSCT-3P95

### HEADPHONE TERMINAL PC BOARD(NASW-4039-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

ICs

S601 25035517 NPS-222-L479,Speaker switch

P601 25045255 YKB21-5009,Headphone terminal

R405,R406 5104228 N11RHC250KWT2ZZ,Balance

R417,R421 5104229 N14RHC100KWT2ZZ,Tone

POWER SUPPLY CIRCUIT PC BOARD(NAPS-4042-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

ICs

S901 25035550  $\Delta$ NPS-111-L512P,Push switch

C901 3500065A  $\Delta$ DE7150FZ103PAC400V/125V

F902 252074 IS capacitor

F902a 25050065  $\Delta$ 2A-SE-EAK,Fuse

F902a 25050065  $\Delta$ YSH-403T,Fuseholder

### POWER AMPLIFIER CIRCUIT PC BOARD(NAAF-4038-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

ICs

Q501,Q502 22240108  $\mu$ PC1225H

Transistors

Q503,Q504 2202492, \* 2SA1264N-R,

2202493, \* 2SA1264N-O,

2202243, \* 2SA1694-O,

2202244 or \* 2SA1694-Y or

2202246, \* 2SA1694-P

Q505,Q506 2202502, \* 2SC3181N-R,

2202503, \* 2SC3181N-O,

2202253, \* 2SC4467-O,

2202254 or \* 2SC4467-Y or

2202256, \* 2SC4467-P

DISPLAY CIRCUIT PC BOARD (NADIS-4037-2A)

#### CIRCUIT NO. PART NO. DESCRIPTION

ICs

Q507-Q510 2211255 2SC1815-GR

Q513,Q514 2212285 2SC2878-A

Q515 2211455 2SA1015-GR

Capacitors

C501,C502 354761009 10  $\mu$ F,35V,Elect.

C505,C506 354741019 100  $\mu$ F,16V,Elect.

C507,C508 37472334 0.033  $\mu$ F $\pm$ 5%,50V,Plastic

C515,C516 354780229 2.2  $\mu$ F,50V,Elect.

C517 353761009 10  $\mu$ F,35V,Elect.

Resistors

R511,R512 5215061 N08HR3KBC,Semi-fixed

R526,R527 442521004 10ohm,1/2W,Metal oxide film

R531,R534 4500005 0.22ohm,2W,Metal plate